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XVII
NEW HEMIPTERA FROM WESTERN NORTH
AMERICA

BY
EDWARD P. VAN DUZEE
Curator, Department of Entomology

The present paper contains the descriptions of 41 new species and subspecies of western Hemiptera. In great part these represent species that have accumulated through the field work of the curator of the department of entomology, in California and neighboring states. Their study has been incidental to the determination of the Hemiptera in the collection of the Academy, during the past five years, and are now published so the names can be used in work now in progress on our interesting western insect fauna.

1. *Vanduzeeina californica* Van Duzee, new species

Larger and less hairy than *balli* with a longer and more parallel head; testaceous brown, closely fuscopunctate, apex of scutellum with an oblong pale spot. Length 6-7 mm.

Head as wide between the eyes as long, but slightly narrowed apically, sides nearly rectilinear; checks shorter than tylus, their surface depressed next the prominent median portion of the tylus, their apex roundedly truncate; bucculae high and subacutely angled as in *balli*. Sides of pronotum distinctly sinuate anteriorly, the anterior angles prominent; in *balli* nearly rectilinear or very feebly arcuated; transverse median impres-

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sion feeble. Upper surface less convex transversely than in *balli*. Punctures on venter hardly as close as on dorsum, the median line smooth. Vestiture short, gray. Rostrum attaining apex of second ventral segment.

Color soiled testaceous brown, closely fuscopunctate, the head, pronotum and connexivum more or less tinged with rufous; lower surface of head and sides of pectus nearly black; apex of scutellum with an oblong pale spot, rounded anteriorly and widened on hind margin, sparingly fuscopunctate and often outlined with fuscous; dorsum sometimes with a slender median white line more or less complete; pronotum usually with a pale point either side before the black annular callosities; expanded anterior angles pale; connexivum annulate at base of each segment. Antennæ fuscous, the incisures pale. Legs fuscous, the knees and tarsi pale.

Described from four male and three female specimens taken at Cisco, Calif., July, 1911, by Dr. Charles von Geldern and one taken by Dr. E. C. Van Dyke in Yosemite Valley Park, June 26, 1921.

The larger size, short sparse vestiture, sinuated pronotal margins, more parallel head and pale apical spot on scutellum will distinguish this species. As in allied scutellerids the male is more uniform in coloration with the pale markings more or less obsolete.

Type: Male, No. 1748, and *allotype*, female, No. 1749, Mus. Calif. Acad. Sci., collected in July, 1911, by Dr. Chas. von Geldern, at Cisco, Calif.

2. *Vanduzeeina borealis* Van Duzee, new species

Differs from *californica* in being larger, in having the cheeks more convex with their margins more acute and overhanging, and the disk of the pronotum more feebly, transversely impressed. The specimens at hand, two females, show a more distinct percurrent pale median carina above and the apical pale spot on the scutellum is scarcely indicated and is more triangular in form. Anterior pronotal angles more rounded, the humeral angles bounded by deeper depressions. Length 7.5-8 mm.

Described from two females, one taken by Mr. Wheeler at Emerald Lake, B. C., August 15, 1915, the other from Golden,

B. C. This should perhaps be considered as a subspecies of *californica* but it has the aspect of a distinct species.

Type: Female, No. 1750, Mus. Calif. Acad. Sci., collected August 15, 1915, at **Emerald Lake, B. C.** *Allotype* in author's collection.

3. *Margus repletus* Van Duzee, new species

Size and aspect of *obscurator* Fabr., but with legs and antennæ more robust, surface more strongly dotted with fuscous, tylus more rounded and less prominent and the spines of the antenniferous tubercles more acute. Length 8 mm.

Head a little longer than broad across the eyes; ocelli more distant than in *obscurator*, obviously nearer the eye than to the median line; tylus scarcely exceeding the cheeks, rounded, not compressed and prominent as in *obscurator*. Antennæ stout; segment I as long as head to hind margin of eye, one-fourth as wide as long, strongly narrowed on basal third; segments II and III subequal to I, IV a little shorter and thicker than III; tooth on antenniferous tubercle terete, exceeding the tubercle by width of segment II. Pronotum narrower than in *obscurator*, the expanded sides recurved, anterior angles broader and more obtuse; median line subcarinate behind the transverse depression; nervures of membrane stout, strongly anastomosing as in *inconspicuus*; whole upper surface strongly punctured, each puncture with a short golden hair. Rostrum attaining anterior line of intermediate coxæ. Male genital segment shorter, vertical, broadly sinuate at apex.

Color testaceous gray, tinged with yellowish on head and connexivum; maculated and strongly punctured with fuscous, including the legs and antennæ, the connexivum and tibiæ alternated with darker areas; beneath pale, dotted with rufous or fuscous, these punctures forming a row on hind edge of each ventral segment; vertex showing a pale median mark at base and two raised spots either side of base of tylus; tip of antennæ rufescent.

Described from one male taken in Palm Cañon, San Jacinto Mts., Calif., at 2000 feet elevation, June 12, 1909, by Mr. Fordyce Grinnell. In Stål's key this runs to *nigropunctatus* but differs in several particulars.

Type: Male, No. 1751, Mus. Calif. Acad. Sci., collected by Fordyce Grinnell June 12, 1909, in **Palm Cañon, San Jacinto Mts., California.**

4. *Cydamus abditus* Van Duzee, new species

Allied to *femoralis* and like that species with a long black-tipped spine at each humeral angle and at apex of scutellum; testaceous yellow, tergum, membrane, and apical segment of antennæ castaneous or black. Length 6-7 mm.

Head narrowed behind the eyes, as long there as half the width of the vertex between the eyes; cheeks not meeting over the tylus. Segment I of antennæ attaining apex of head; II and III subequal; IV a little shorter than II and III together, but little thinner than anterior femora, tapering to either end. Rostrum attaining hind coxæ; segment I much thickened, reaching posterior line of eyes; II twice longer than III and IV together; III one half of IV. Pronotum oblong, a fourth longer than wide, together with the head closely punctate; a broad transverse impunctate area covers the callosities; humeral spines erect, acute, as long as width across the ocelli. Scutellum narrow, smooth, with a marginal row of punctures; apical spine erect, as long as the humeral. Elytra coarsely punctate, reaching apex of third abdominal segment; clavus with three regular rows of punctures; corium with two strong veins, the areoles edged with a row of coarse punctures; membrane a mere margin to the oblique apex of the corium. Abdomen smooth and polished. Osteolar canal auriculate, prominent.

Color testaceous-yellow, paler beneath; membrane, broad vitta on tergum, genital segment and humeral and scutellar spines black; eyes and apical segment of antennæ castaneous, the latter paler at either end; antennæ and legs faintly punctate with dusky; tip of rostrum black.

Described from two male and five female examples taken by me from under stones at Nogales, Arizona, April 3, 1921. In structural characters this species is allied to *femoralis* but it is very distinct otherwise.

Type: Male, No. 1752, and *allotype*, female, No. 1753, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, April 3, 1921, at **Nogales, Arizona**.

5. *Lygidea essigi* Van Duzee, new species

Closely related to *obscura* Reuter, a little broader, darker colored, head fuller and antennæ thicker. Length 6 mm.

Male: Vertex strongly convex, highly polished, basal carina slender, with a deep depression before it, median line very feebly impressed; clypeus less prominent than in *obscura*, its basal incisure shallow; eyes

smaller than in *obscura*. Antennæ stouter; segment I a fifth longer than width of vertex; II nearly three times as long as I and distinctly more slender; III and IV together more than half of II, IV a third of III. Rostrum reaching on to base of hind coxæ. Pronotum broader before than in *obscura*, the rounded anterior angles attaining outer third of eyes; transversely depressed behind the prominent polished callosities; sides slightly concave, hind margin distinctly emarginate; surface behind the transverse impressed line closely deeply punctate; elytra distinctly widened to near apex of corium, parallel in *obscura*. Sinistral clasper much as in *obscura*, stouter, dorsal member longer and more curved, ventral member meeting the dextral clasper in an almost straight line, not at an angle as in the related species.

Color black; cheeks, except at base, a very obscure median line on vertex, a broader one on posterior lobe of pronotum, collum and cuneus, except at apex, pale yellowish; vestiture pale, rather conspicuous on scutellum and elytra; membrane deep smoky and a pale annulus at apex of areole; legs and beneath pale yellow with a broad black vitta either side, covering most of the genital segment; apex of femora and tips of tibiæ fuscous, the tarsi mostly black; antennæ black; rostrum mostly pale. Described from the unique type.

It is impossible to identify this with *Lygidea morio* Reut., a species still unknown to me in nature.

Type: Male, No. 1754, Mus. Calif. Acad. Sci., collected by Prof. E. O. Essig, May 19, 1922, at Los Altos, Santa Clara Co., California.

6. *Camptobrochis slevini* Van Duzee, new species

Size and aspect of *rufiventris* Knight but belonging to his group II having the scutellum punctate and the arolia without a deep cleft. Apparently allied to *atriventris* Knight but differing in many respects; deep black, cuneus red, head and scutellum opaque, rugose-punctate. Length 5 mm.

Male: Head one-half as wide as base of pronotum; closely rastrate-punctate and opaque, with sparse white hairs. Segment I of antennæ much exceeding the head, II stout, two and a half times as long as I; III and IV wanting in type. Pronotum with coarse shallow punctures; hind margin broadly emarginate, the humeri scarcely retreating; sides ecarinate. Scutellum flattish, opaque, closely rugose-punctate including the basal lobe. Elytra closely, finely punctate, the embolium confined to basal third and scarcely reflexed; cuneus closely rugose-subpunctate.

Rostrum attaining apex of hind coxæ; mesosternum and pleuræ in part opaque. Sinistral notch of male genital segment rounded, the sinistral clasper broad, flattened and rugose, its apex becoming terete and curved under around apex of segment.

Color black, moderately polished; the head, collum and scutellum opaque or scarcely shining; base of vertex, tip of scutellum, middle of tibiæ and most of tarsi testaceous; thickened inner margin of corium beyond tip of clavus and the cuneus red, the latter with basal and apical angles blackish; margin of acetabulæ and osteolar region whitish. Described from the unique type.

In size, form and coloring this species recalls *Pæciloscytus venaticus*. It is somewhat aberrant in this genus but does not better fit into any other.

Type: Male, No. 1755, Mus. Calif. Acad. Sci., collected by Mr. L. S. Slevin, September 18, 1920, at **Carmel, California**. It affords me pleasure to dedicate this species to its discoverer.

7. *Strongylocoris uniformis* Van Duzee, new species

Allied to *robustus* Uhler, but with the legs and antennæ entirely black and with different male genitalia. Length 4 mm.

Vertex convex and highly polished; clypeus a little shorter than in *robustus*; antennæ a little shorter and more robust. Dextral male clasper forming a semicircle vertically but without lateral curvature, within widened in a bluntly rounded lobe at basal third, and at distal third armed with a very acute tooth, the long slender apical member acute, becoming castaneous at tip. Sinistral clasper small, slender, its acute apex sharply incurved over the ædeagus.

Color deep polished black, apical half of the antennæ becoming fuscous, membrane deep fuliginous toward its apex with a paler mark at apex of cuneus. Antennæ and sides of pronotum and elytra with a few brown hairs.

Described from two males and eleven females taken on sage brush at Heber, Utah, July 5, 1922. The almost uniform black color and long, acutely produced dextral male clasper will distinguish this species.

Type: Male, No. 1756, and *allotype*, female, No. 1757, taken by E. P. Van Duzee, July 5, 1922, at **Heber, Utah**.

8. *Largidea pudica* Van Duzee, new species

A little larger than *marginata*; polished luteous-brown, slightly tinged with red, the cuneus red; vertex, mark on pronotum and the antennæ blackish. Length 4.5 mm.

Male: Head larger with the eyes more prominent than in *marginata*. Antennæ about as in *marginata*; segment I a little longer than the vertex when viewed from above; II as long as head and pronotum together; III and IV slender, together nearly one-half of II. Pronotum a half wider than long, more convex above than in *marginata*, the sides less strongly carinate and nearly rectilinear; hind edge more broadly excavated; surface less closely punctured. Scutellum broader and more convex with the sides steep, the depressed tip acute; punctures subobsolete. Elytral punctures larger, more distant and becoming subobsolete. Rostrum scarcely surpassing middle of mesosternum. Surface sparsely clothed with cinerous appressed hairs which become denser on callosities and vertex.

Color a lurid luteous-brown; apex of tylus and cheeks, a narrow median cloud or two crescentic vittæ on face, region of callosities and basal lobe of scutellum black; antennæ reddish fuscous, the base of segment I clearer red; hind edge of pronotum pallid; cuneus red; membrane faintly smoky, the veins fuscous; legs and abdomen in part reddish, the tarsi, rostrum and mesosternum blackish.

Described from two males, one taken by me at Colestin, Oregon, the other taken by Mr. W. M. Giffard at Tallac, California, August 22, 1916. The polished surface and luteous-brown color gives this species quite a different aspect from *marginata*.

Type: Male, No. 1758, Mus. Calif. Acad. Sci., taken by E. P. Van Duzee, August 1, 1918, at Colestin, Oregon. *Paratype* in collection of the author.

9. *Orthotylus pluchææ* Van Duzee, new species

Allied to *hamatus*, smaller with different male genitalia, base of tylus with a dark spot; pale greenish, tinged with yellow, membrane faintly smoky, segment I of antennæ dusky in male. Length 4.5-5 mm.

General characters essentially those of *hamatus*, the pronotum more convex and more narrowed before, with its sides distinctly concavely arcuated. Sinistral male clasper terete, reaching but about half way to

apex of genital segment, exceeded by the brown chitinized spine-like ventral member. Dextral clasper ligulate, curved over and considerably passing the middle of the segment, its truncate apex with a minute sharp ventral tooth, its dorsal edge notched at basal third and armed there with a short parallel tooth. In *hamatus* the sinistral clasper is much larger and more slender and pointed, and the dorsal notch of the dextral clasper is larger with a longer tooth. Rostrum attaining hind edge of mesosternum.

Color pale yellowish green, minutely white-pubescent; antennæ of male dusky with the inner face of segment I pale; membrane faintly but obviously smoky, with pale veins; tip of tarsi and of the rostrum black.

Described from 6 males and 3 females taken on *Pluchea sericea* at Potholes, Imperial Co., California, April 13, 1923. This is very close to *hamatus* but the smaller size and much less developed male genitalia would seem to indicate specific distinction.

Type: Male, No. 1759, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, April 13, 1923, at **Potholes, California.**

10. *Orthotylus demensus* Van Duzee, new species

Size and aspect of *languidus* but with thicker antennæ, shorter pubescence and different male genitalia. Length 5 mm.

Male: Head as long as in *languidus*. Antennæ thicker; segment I scarcely as long as distance between the eyes; II three times as long as I and nearly as stout; III and IV wanting on material before me. Pronotum $2\frac{1}{2}$ times as wide as long, sides rectilinear or scarcely concave (in *languidus* fully half as long as wide, with sides concave). Elytra parallel. Rostrum not attaining intermediate coxæ. Sinistral clasper transversely developed, dorsal member attaining upper plane of segment, broad, subparallel, rounded at apex; ventral member narrow, acute, produced backward making the apical line of the clasper oblique and nearly rectilinear. Dextral clasper nearly square, the dorsal basal angle rounded, the dorsal apical acutely incurved. Vestiture soft and white but shorter than in *languidus*.

Color pale yellowish green or almost whitish, the fuscous mesonotum showing through the pronotum; basal lobe of scutellum tinged with fulvous; elytra more greenish, the veins clear pea-green, areoles sprinkled with green dots at base of the hairs; membrane very slightly enfumed and iridescent; antennæ and legs yellowish, tips of tarsi black.

Type: Male, No. 1760, Mus. Calif. Acad. Sci., collected by C. A. Hill, July 8, 1917, at **Prescott, Arizona**. *Paratypes*, two males, same data.

11. *Orthotylus cupressi* Van Duzee, new species

Dusky green with fulvous scutellum; surface clothed with rather long black hairs; outer half of membrane deeply infuscated, cut by a white spot at apex of areole. Length 5 mm.

Male: Head broad, convex above, somewhat obscuring the basal carina; clypeus but moderately prominent. Rostrum attaining apex of hind coxæ. Pronotum short, twice wider than long, regularly arcuate before. Scutellum, large, rather convex. Elytra nearly parallel, the costa but feebly arcuated. Sinistral clasper developed transversely in an open crescent, its dorsal member about twice longer than its basal thickness, acute at apex; ventral member broadly obliquely truncate at apex, its upper angle forming a short curved hook, its lower curved and very acute, nearly attaining the base of the dextral clasper; the latter, also, subcrescentic, its ventral member ligulate with its twisted truncated apex at median line of the segment, its dorsal member forming a short erect acute tooth.

Color a dull, almost an olive, green, paler toward the costa, the tylus and front of pronotum tinged with yellow; cuneus paler with a whitish cloud at base; membrane infuscated, its outer half, including the areoles, darker with a pale mark at apex of the areole; tergum black; beneath paler, the mesosternum tinged with fulvous-brown; legs and antennæ yellowish green, clothed with short black hairs; apical two segments of antennæ infuscated, the tarsi becoming black at apex.

Described from one male and three female examples taken by me on Sargeant's Cypress growing on "Cypress Ridge" at Fairfax, Marin Co., Calif., April 30, 1922, and May 11, 1919. This species is very distinct from any heretofore described. Its dark green color, fulvous scutellum, heavy black vestiture and infuscated membrane will distinguish it, while the male claspers are unlike those of any other species known to me. It has slightly the aspect of an *Ilnocora* but does not pertain to that genus.

Type: Male, No. 1761, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, April 30, 1922, at **Fairfax, California**.

12. *Orthotylus contrastus* Van Duzee, new species

Form and aspect somewhat of *Teratocoris discolor* Uhler. Large, elongate-ovate; black; legs, median line on pronotum, and elytra whitish, the latter with a large fuscous mark on apex of corium. Length 6 mm.

Female: Head short, polished; clypeus unusually prominent; antennæ long; segment I as long as head viewed from side; II four times as long as I; III not quite one half of II; IV missing in type. Pronotum campanulate; sides strongly concave, the constriction farther back than in *affinis*; callosities convex, polished; posterior lobe and scutellum minutely, transversely rastrate-shagreened. Elytra widened to apex of corium.

Color dull black; head and callosities polished; apex of cheeks and collum ferruginous; orbits of eyes above, median vitta on posterior lobe of pronotum and elytra obscure whitish; base of clavus and an irregular spot on apex of corium black, the latter mark extended anteriorly next the costal nervure and on discal areole, outer margin of clavus dusky; cuneus with a blackish mark on inner edge near apex; membrane smoky; paler along middle and at apex of cuneus, the pale nervures margined with darker; rostrum, except apex, legs and disk of venter pale; extreme base and apex of tibiæ and the tarsi dusky. Described from the unique type.

This large black and white species is so distinct from any other described form it seems safe to found the species upon a unique female.

Type: Female, No. 1762, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 8, 1922, on Mt. Timpanogos, Utah, at an elevation of nearly 8,000 feet.

13. *Parthenicus brunneus* Van Duzee, new species

A slender testaceous-brown species, obscurely irrorate with sanguineous; membrane deeply infuscated, with paler areoles. Length 4 mm.

Male: Vertex rather flat; clypeus small but prominent and much compressed; segment I of antennæ a little longer than basal width of vertex; II five times the length of I; III and IV together equal to II. Pronotum scarcely twice wider than long. Elytra narrow, parallel, the costa scarcely arcuated. Legs long for the genus, the hind femora proportionately narrower; hind tibiæ nearly as long as the corium. Male claspers small and obscure.

Color light testaceous-brown, sparsely irrorate with irregular sanguineous blotches, these becoming fuscous dots on the pronotum; head and anterior area of pronotum yellowish, obscurely irrorate with red; region of callosities more or less infuscated; membrane quite deeply infuscated, veins dotted with red, the areoles and adjacent spots at apex of cuneus paler; vestiture consisting of black scale-like hairs and longer pale hairs along costa, on sides of pronotum and on vertex; antennæ paler toward base; segment I with a brown dot near base beneath; pectoral pieces and coxæ without irrorations; venter irrorate with red; femora irrorate with brown, the posterior more closely so; tibiæ with large brown dots; tarsal claws black.

Described from two male and three female examples taken on *Baccharis*. The large eyes, elongate narrower form and long hind legs would ally this species with *Argyrocoris* but it is certainly a Parthenicus. The larger size, darker color, black scale-like vestiture, dotted hind femora and red dotting on elytra and veins of membrane will distinguish this species from *baccharidis* Knight.

Type: Male, No. 1763, and *allotype*, female, No. 1764, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, September 9, 1917, at Berkeley, California. *Paratypes*, same data.

14. *Parthenicus sabulosus* Van Duzee, new species

Related to *soror* but allied to *candidus* by the spotted membrane; soiled white irrorate with croceous or brown; membrane coarsely, conspicuously dotted. Length 3.5 mm.

Male: Head broader than in *soror* with smaller eyes; pronotum broader anteriorly; elytral costa feebly arcuated. Rostrum reaching well on to the base of the venter. Claspers larger than in *soror*, the dextral forming more than a half circle, its apex elbowed at the median line of the genital segment with its incurved tip slender and very acute.

Color whitish tinged with yellow on the head; pronotum and elytra sparsely and sometimes obscurely dotted with croceous or pale sanguineous, these dots becoming brownish at times; region of callosities and base of scutellum more or less infuscated; membrane white, coarsely and sparsely dotted with fuscous, with two marginal clouds beyond apex of cuneus; beneath sparsely dotted with sanguineous with a lateral fuscous vitta on venter; antennæ slightly darker at apex; segment I with a faint subapical annulus; femora minutely dotted with fuscous beyond the middle, the posterior more heavily so, forming a fuscous cloud there

which omits the tip; vestiture silvery, becoming golden along claval suture, on cuneus and about callosities; a tuft of black scales at apex of clavus and two more on apical margin of cuneus.

Described from two males and 11 females taken on *Artemisia*. This species, with *aridus* Knight and *canescens* Van D., have coarsely dotted white membranes.

Type: Male, No. 1765, and *allotype*, female, No. 1766, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 1, 1922, at Salt Lake City, Utah. *Paratypes*, same data.

15. *Parthenicus pallidicollis* Van Duzee, new species

Closely allied to *pivicollis* Van D. but paler in color with the pronotum mostly whitish; largely sanguineous with the hind femora and scutellum darker and the pronotum pale. Length 4.5 mm.

Male: Vertex broader and fuller with the eyes smaller than in *pivicollis*; segment II of antennæ slightly longer than basal width of pronotum, the latter obviously longer with the sides less oblique than in *pivicollis*. Elytral costa distinctly arcuated, in *pivicollis* essentially straight. Claspers about as in *pivicollis*, the subapical ventral tooth of the dextral less prominent.

Color above soiled creamy white, the elytra more or less washed or blotched and irrorate with sanguineous, more conspicuously so on base of corium and on the cuneus, inner angle of corium with a pale fuscous cloud more or less distinct; clypeus, cheeks and arcs of front more or less sanguineous; antennæ pale, segment I tinged with red; pronotum pale or lurid, more or less irrorate with red about the borders, becoming piceous-red on sides inferiorly and sometimes across the callosities; scutellum dark piceous-red; membrane deeply infuscated as in *pivicollis* but with a distinct pale lunule at apex of cuneus which is only indicated in its ally, veins red, usually with a white mark at apex of larger areole; beneath and hind femora piceous-red, more or less irrorate with pale; tibiæ pale with rather large red dots; antennæ pale, segment I red, pale at apex, III and IV slightly infuscated; coxæ and rostrum infuscated; vestiture of short golden scales and longer pale hairs on head, sides of pronotum and base of costa. Described from 30 examples representing both sexes.

This species may be distinguished from *rubromaculosus* Knight (1925) by the larger size, deep red scutellum sides of

pronotum and hind femora, and the pale fuscous color on inner field of corium.

Type: Male, No. 1767, and *allotype*, female, No. 1768, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 23, 1918, at McCloud, Siskiyou Co., California. *Paratypes*, same data.

16. *Parthenicus discalis* Van Duzee, new species

Near *covilleæ* Van D., and running to that species in my key of 1918; antennæ longer, lower surface and femora sanguineous. Length 3.75 mm.

Head about as in *picicollis*, distinctly more produced than in *covilleæ*, its length beyond the eye about equal to the length of the eye; antennæ distinctly longer than in *covilleæ*, as long as the elytra to tip of cuneus; segment II five times the length of I.

Color pale croceous; apex of head, segment I of antennæ, its extreme tip excepted, deflexed sides of pronotum, scutellum and femora except at base, dark sanguineous; base of elytra, a cloud on inner angle of corium touching apex of clavus and extended down the commissure to base of membrane, cuneus and beneath, lighter sanguineous or slightly irrorate with pale; sternum, coxæ and rostrum pale; tibiæ and tarsi pale, the former with a few sanguineous dots; claws black; membrane deep fuscous with an obvious pale lunule at apex of cuneus, the veins sanguineous; antennæ, except segment I, whitish scarcely dotted with red; IV somewhat infuscated; pale surface above showing no red irrorations.

Described from three females. These specimens are without a hairy vestiture.

Type: Female, No. 1769, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, October 18, 1917, on Mt. Wilson, California. *Paratypes*, same data.

17. *Parthenicus grex* Van Duzee, new species

Allied to *psaloides* and *juniperi*, larger, testaceous-yellow, the elytral pigment coagulated in spots and varied with small sanguineous blotches; membrane slightly enfumed, with a darker spot beyond the cuneus. Length 4.5 mm.

Macropterous male: Head broadly convex across vertex, the impression at base of clypeus not as deep as in the allied species; clypeus com-

pressed and subacute at tip. Antennæ long; segment I surpassing clypeus by a third its length, linear; II three times I; III and IV together equal to II. Rostrum reaching to middle of venter. Pronotum but slightly convex, trapezoidal, sides straight, anterior margin one half the posterior. Elytral costa gently arcuated; surface clothed with short golden pubescence intermixed with a few black hairs across apex of corium, on inner margin of cuneus and at apex of clavus; costa and pronotal margins with longer golden hairs; vertex and pronotum anteriorly with a few silvery scale-like hairs. Claspers large; sinistral subterete, curved about the margin of the segment, abruptly slender, acuminate and incurved beyond the middle; dextral slender, curved, abruptly oblique and acuminate at tip; both fringed above with long pale straight hairs.

Color testaceous-yellow, more or less tinged with croceous, especially on head and hind femora, the color on the elytra apparently coagulated; the elytra dotted with irregular sanguineous blotches and points which may be mostly absent, but are more persistent along costa; membrane faintly enfumed with a darker cloud beyond tip of cuneus and a fainter one at apex; veins yellowish with a few sanguineous points; antennæ pale, subinfuscated at apex; beneath paler; tip of rostrum and tarsal claws black; hind tibiæ with obscure sanguineous points, eyes red.

Described from three males and four females. Three of the latter are brachypterous, being broad-oval, with membrane scarcely exceeding apex of cuneus.

Type: Male, No. 1770, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, August 21, 1919, at Stockton, California. *Paratypes*, same data.

18. *Cixius vandykei* Van Duzee, new species

Allied to *basalis*, distinguished by its broader and more setose elytra, narrower vertex and different male genitalia. Length 5-6 mm.

Head more produced than in *basalis*; vertex nearly as long on its median line as wide at base, (in *basalis* scarcely one half as long as wide), at apex subacutely angled; apical compartments narrower, their outer angles more produced posteriorly; base of vertex more deeply elliptically excavated. Pronotum narrower and more produced before, its hind margin more deeply, acutely excavated; lateral carinæ of mesonotum more distant and outwardly arcuate than in *basalis*. Elytra shorter and broader, with the costa strongly and almost regularly arcuate; inner sector (radial vein) forked a little farther from base than in *basalis*, all veins heavily dotted, with longer black setæ. Front more narrowed at base, with the sides

straight nearly to apical angles. Expanded apex of male plates longer and more rounded; anal teeth of pygofer short, more divergent, not long and parallel as in *basalis*.

Color paler, testaceous-yellow, clouded with piceous-brown or fulvous-brown on head and thorax; front and clypeus quite uniformly brownish, the carinae paler, the lateral with small pale spots at apex of front; elytra hyaline, feebly milky white, veins strongly dotted with fuscous and more or less marked with the same color in the female, mostly in the form of a large discal spot, sometimes forming a longitudinal cloud on clavus which may cover more or less of the corium; beneath and legs pale, the femora with a faint brown subapical cloud.

Described from two males and four females taken as follows: Lagunitas Cañon, April 23, 1916 (E. C. Van Dyke); Lagunitas, July 4, 1909 (Van Dyke); Muir Woods, July 19, 1914, and Ross, July 7, 1921 (E. P. Van Duzee); Mt. Tamalpais, June 23, 1918 (E. P. Van Duzee), all in Marin Co., Calif.; Berkeley, Calif., July 30, 1922 (J. O. Martin).

Type: Male, No. 1771, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 7, 1921, at Ross, California; *allotype*, female, No. 1772, Mus. Calif. Acad. Sci., collected by E. C. Van Dyke, July 4, 1909, at Lagunitas, Calif.

19. *Cixius præcox* Van Duzee, new species

Very near *cultus* Ball but with the elytral nervures infuscated, the radial and outer branch of ulnar veins forked on the same line (in *cultus* the radial forks a little basad of the outer ulnar); lateral pronotal carinae bent abruptly where they touch the hind margin (in *cultus* forming a more rounded angle); male plates more arched, uniting in an almost circular arc (in *cultus* angularly connivent); apical member a little broader and more oblique; sides of ventral sinus of pygofers more oblique, with the basal tooth larger than in *cultus*; front proportionately longer than in *cultus*. Length 5 mm.

Color essentially as in *cultus*; elytra more whitish opaque, the cross nervures and apices of all veins marked with fuscous; costa and commissure typically alternated with obscure fuscous; stigma fuscous, white at base. Veins undotted.

Type: Male, No. 1773, and *allotype*, female, No. 1774, Mus. Calif. Acad. Sci., collected by G. F. Mozzette, March 14, 1915,

at **Corvallis, Oregon**. *Paratypes*, one female, same data; one female, Shasta Co., Calif., July 17, 1921 (J. A. Kusche), and one male and two females taken by Mr. W. Downes at Vernon, B. C., Sept. 27, 1919, and Enderby, B. C., Oct. 10, 1920.

20. *Æcleus subreflexus* Van Duzee, new species

Apparently allied to *addendus* Dist., aspect of *fulvidorsum* but with the elytral nervures nearly impunctate and the costa slightly expanded at base. Length 5 mm.

Vertex about as in *fulvidorsum* but more narrowed to the base, but little exceeding the eyes; front broad below, regularly narrowing to the base, more abruptly to the apex where it is about twice wider than at base; carinæ prominent, the median nearly obsolete at base. Pronotum short, angularly excavated behind; mesonotum with five distinct carinæ. Elytra wider than in the allied species with a broader costal areole, the margin at base narrowly explanate exterior to the costal vein. Genital segment of male shallowly notched with a slender, almost linear, median tooth, which slightly exceeds the sides of the segment; stiles much as in *fulvidorsum* but quite strongly connivent at apex.

Color creamy white; claspers fuscous or nearly so; middle line of vertex blackish; mesonotum fulvous varied with brown; elytra obscurely fuscohyaline; nervures white with scattering black setæ, in the male those toward the apex springing from brown points; abdomen more or less overspread with black.

Described from seven male and four female examples taken on *Pluchea sericea* at Potholes, Imperial County, California, April 7-13, 1923. Allied to *fulvidorsum* by the characters of the vertex, front, mesonotum and male genitalia; separable by the almost undotted elytral nervures and the narrowly expanded costa. *Æcleus snowi* Ball is a much larger and broader species of a more fulvous color and broader costal expansion. Of this latter species I took one pair in copula at Potholes, Calif., resting on a poplar bush. A few specimens of *subreflexus* taken April 8 were found on *Atriplex*.

Type: Male, No. 1775, and *allotype*, female, No. 1776, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, April 13, 1923, at **Potholes, Calif.**

21. *Pissonotus giffardi* Van Duzee, new species

Very close to *delicatus* but distinguishable by the distinctly longer legs and different male genitalia. Length, brachypterous form, male, 2.5 mm., female, 3.5 mm.

Male: Vertex scarcely longer than broad, feebly arcuate before; lateral carinæ sharp, well elevated; median obscure; apical fovæ obvious. Front twice longer than broad, sides very feebly arcuate, almost parallel; carinæ prominent, the median obscurely forked a little above the lower angle of the eyes. Carinæ of clypeus prominent, the median obsolete near base. Antennæ long, surpassing tip of clypeus, clothed with minute black hairs; basal segment as long as width of front; second about one third longer. Pronotum nearly as long as vertex, truncate behind; carinæ prominent, the lateral attaining hind margin, the fovæ deep, about a third wider at base than at apex. In *delicatus* the lateral carinæ are more oblique and do not quite reach the hind margin of pronotum. Mesonotum a little longer than pronotum; median carina prominent, lateral distinct but slender. Elytra on commissure as long as pro- and mesonotum together, attaining apex of second tergal segment; subcoriaceous, polished; venation obscure. Legs very long, the hind tibiæ as long as vertex, pro- and mesonotum and elytra combined, or even a little longer to tip of the shorter apical spines; first segment of hind tarsi as long as width of head across the eyes.

Aperture of male pygofer broad ovate, the sides forming an obtuse lobe either side ventrally; the anal hooks long, following the margin of the pygofer, their black apex slender, curved outward and lying on the thickened base of the ventral opening; the ventral spines slender, black, lying near to and parallel with the apex of the anal hook; stiles short and broad, their length equal to their combined width, their broad rounded apices incurved and subcontiguous. *Marginatus* has the anal hooks equally long but their apices are thicker, pale and parallel, the ventral spines are represented by pale tubercles and the stiles are broad, flat, moderately divergent and truncate at apex.

Color honey-yellow, paler on pronotum, across the apex of the front and on the breast and legs; elytra strongly tinged with castaneous; their apex white, usually marked at middle with a blackish spot in the males; abdomen pale rufo-piceous in the male, the genital area whitish with a piceous cloud covering the stiles; legs lineate with brown, the base with a spot exteriorly and the apex of the tarsi blackish; the usual black band covers the base of the fore coxæ and clypeus and extends on to the pleural pieces.

Described from 10 male and 20 female examples taken on tar weed near Grossmont, 17 miles east of San Diego, California, June 2, 1919, by Mr. W. M. Giffard. It gives me

September 24, 1925

pleasure to dedicate this species to Mr. Giffard who has done more than anyone else to elucidate the delphacid fauna of California.

Type: Male, No. 1777, and *allotype*, female, No. 1778, Mus. Calif. Acad. Sci., collected by W. M. Giffard, June 2, 1919, at Grossmont, California.

22. *Cyrtolobus pictus* Van Duzee, new species

Near *inermis* Emmons, agreeing with that species in the form of the dorsal crest, in the unicolorous pale green female and the strongly maculated male; differing in the shorter pronotum and in the markings of the male. Length 4-5 mm.

Allied to *vau* but smaller, dorsal crest lower with the anterior sinus scarcely indicated in the male; in the female with the crest more uniformly arcuate with an anterior sinus; apex of pronotum even shorter than in *vau*, not attaining tip of fourth apical vein; face not as flat as in *vau*; smooth, polished, uneven, obscurely punctured toward apex of cheeks, incisures of clypeus deep, its apex rounded. Elytra hyaline, in male with veins heavy and fuscous, the apex with a small smoky cloud, about half of which lies on the apex of the areoles. Female without such cloud, the veins pale, concolorous; surface sparsely clothed with short erect hairs.

Color a uniform pale green in female; male a clear greenish yellow on face pronotum, legs and margins of pleural pieces; face with a median vitta, a cloud either side and the clypeal sutures black; pronotum with a mark above each eye, the apex and a broad triangular vitta behind the middle, black, including a dorsal yellow mark; anterior to this vitta is a broad vague oblique maculate area either side meeting above the humeri. These markings on the male leave the anterior portion of the pronotum, a rather wide, oblique, median vitta, a dorsal spot more or less completely connecting with this vitta, and a wide transverse subapical band, yellow. In *vau* this dark color is more extended with the included pale dorsal spot larger. Edges of abdominal segments and genital pieces mostly yellow. Femora black in the male, with their apices broadly yellow, the tibiae minutely dotted.

Described from 8 male and 12 female examples beaten from oaks growing along the cañon of the south fork of the Provo River at Vivian Park, Utah. This species is really nearest to *inermis* Say and like that species might almost as properly be placed in subgenus *Atymna*. The male may be distinguished

by the different and more extended yellow markings of the pronotum. In *acutus*, which was taken in company with this species, the female shows more maculation on the pronotum and the pale markings of the male are narrower and do not include the front of the pronotum. It is also larger and has the pronotum more pointed at apex. The females of *pictus* differs but little from those of *inermis* and the female specimen from Ogden, Utah, recorded by me in my Studies on the Membracidae (Bul. Buf. Soc. Nat. Sci., ix, p. 90, 1908) belongs here.

Type: Male, No. 1779, and *allotype*, female, No. 1780, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 7, 1922, at Vivian Park, Provo Cañon, Utah.

23. *Mesamia pagana* Van Duzee, new species

Near *nervosa* Osb. but with the submarginal black line on vertex with three interruptions and the costal area without supernumerary transverse veins. Length 4.25 mm.

Male: Head almost as wide as pronotum; vertex flat, anterior margin in a rounded arc, one-fourth longer at middle than at eye, edge acute and slightly reflexed. Pronotum nearly twice as long as vertex. Elytra not flaring at apex; about six transverse veinlets between inner sector and claval suture; costal area without supernumerary veins; clypeus strongly widened at apex. Valve short, broadly arcuated; plates long-triangular, acute and slender at apex, edge long-ciliate.

Color obscure greenish yellow varied with darker; vertex whitish on anterior and posterior margins; anterior submargin with a heavy black line interrupted at middle and on either side; behind this is a dusky line which touches the other at either end. Face dusky yellow; front pale brown with paler arcs and a heavier black basal line; cheeks with a longitudinal dusky line below the eyes; pronotum dusky greenish, yellowish anteriorly; scutellum yellow either side, the impressed line black; elytra greenish yellow, veins conspicuous, fuscous; apex of claval areoles and narrow margin of membrane dusky, the claval suture with three large, vague, pale spots; legs pale, posterior with tibial dots and apex of tibiae and tarsi black; abdomen black, marked with yellow, these markings forming a slender line on the hind margin of each segment; a large testaceous spot either side on venter, the connexivum mostly yellow; plates pale with a spot at base and sutural lines near apex fuscous.

Described from the unique type. Apparently allied to *nervosa* Osb. (Fla. Ent. VI, p. 20, 1922) but the want of costal transverse veins and the coloration will most quickly distinguish it.

Type: Male, No. 1781, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 24, 1922, at **Kings Station, Davis Co., Utah.**

24. *Mesamia diana* Van Duzee, new species

Larger than *coloradensis* with a flatter and more angled vertex; elytra strongly veined. Length 4.5 mm.

Head scarcely narrower than pronotum; vertex flat, anterior edge sharp, somewhat reflexed, strongly angled; front a little broader than in *coloradensis*, sides more arcuated below; clypeus slightly widened to tip. Pronotum a fourth longer than vertex; elytra moderately flaring; inner sector connected with claval suture by numerous transverse veinlets; costal areole with six to eight oblique veinlets, heavily marked with fuscous.

Male valve short, subacute, angulate; plates long-triangular, their acute tips surpassing the pygofers; last ventral segment of female angularly excavated nearly to the middle, with a square, feebly bifid, median tooth; pygofers broad spindle-shaped, nearly equalling the oviduct.

Color cinereous tinged with yellow on vertex, anterior margin of pronotum and scutellum, more marked in male; subapical line on vertex interrupted at middle where there is a triangular extension backwards either side of the median pale line; behind this a transverse dusky cloud connecting the ocelli and obscuring the disk of the vertex; median incised line black at base. Face pale, more or less clouded with brown, especially on base of front where a few pale arcs are discernible, extreme base with a concentric black line. Pronotum irrorate with brown and pale; scutellum dusky at basal angles, the incised line dark. Elytra milky-cinereous, the veins strong, fuscous, disk of areoles mostly with fuscous cloud. Legs and beneath whitish, the pleuræ marked with black; tibial dots and apex of tibiae and tarsal joints black; venter pale yellow, hind margin of segments blackish.

Described from one female and three males taken by me in San Diego County, California, as follows: Mussey's, August 7, 1913 and April 12, 1914; Lakeside, May 7, 1913; Alpine, June 8, 1913. This species has the broad form of *Aligia in-*

scripta but the flatter vertex with hooked submarginal line, and the strongly veined unclouded elytra will distinguish it.

Type: Female, No. 1782, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, August 7, 1913, at **Mussey's, San Diego Co., California**. *Allotype* and *paratypes* in collection of the author.

25. *Aligia californica* Van Duzee, new species

Related to *inscripta* with a similarly angulated vertex; longer and more slender, quite uniformly inscribed with fuscous. Length 5 mm.

Female: Head distinctly wider than pronotum; vertex flat, quite strongly angled before, typically two-thirds as long as pronotum but varying to one half its length; front scarcely longer than wide, sides nearly rectilinear below antennæ; clypeus slightly widened at apex. Hind margin of pronotum subangularly emarginate. Elytra four times as long as wide, with numerous transverse false veins, especially in costal, subapical and sutural areoles of corium. Last ventral segment produced on its median fourth with a linear central notch.

Color pale testaceous, tinged with fulvous on vertex and scutellum; vertex with a pair of small spots behind apex, another pair either side near base; sometimes a point within the ocelli and a broken transverse band just behind the ocelli brown, the broad incised line black; front with obscure arcs, outer angles of loræ with black points; pronotum mottled with brown, anteriorly pale with three large spots either side; scutellum with two discal dots, a small lateral spot either side and a transverse band before the apex brown, the curved incised line black; elytra whitish, venation brown, becoming fuscous on costa and apex; commissural vein and tips of claval veins white, with a fuscous spot anterior to each white vein and one at apex indicated; disk of a few of the areoles with vermiculate inscriptions; beneath pale, slightly varied with brown; anterior and intermediate femora bilineate; tibiæ with strong black dots; pale spines of pygofers set in black points, sides of oviduct black.

Male: Proportionately shorter than the female; valve short, broadly angled; plates acutely triangular, but little shorter than wide at base, sides straight.

Described from 8 females, 7 of which were beaten from chapparral and juniper bushes at Mill Creek Cañon, San Bernardino Mountains. The other I took at Pine Hills, Cuyamaca Mountains, California, October 19, 1913. Three individuals.

have the vertex distinctly shorter but I fail to detect any specific differences. Also two males: Colestin, Jackson Co., Oregon, August 1, 1918, and Mt. Tamalpais, Marin Co., California, June 23, 1918.

Of *Aligia inscripta*, in addition to the type, I have seen examples from San Diego Co., Pasadena, Mt. Wilson, Stanford University, Mt. Tamalpais, Alameda, Cazadero, Bryson, and Cayton, California. These have the last ventral segment of the female about as in *californica* but differ in their stouter form and banded elytra.

Type: Female, No. 1783, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, September 22, 1923, in **Mill Creek Cañon, San Bernardino Mts., Calif.**; *allotype*, male, No. 1784, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, August 1, 1918, at Colestin, Oregon.

26. *Aligia colei* Van Duzee, new species

Related to *californica* but more strongly colored with more produced vertex and truncate female segment. Length 5 mm.

Head wider but scarcely shorter than pronotum, flat, produced in a right angle and subacute at tip, the margin rounded; elytral venation conspicuous. Last ventral segment of female nearly truncate, the apex slightly produced and notched. Valve of male scarcely angled; plates somewhat longer than broad at base, becoming narrow at apex; sides concavely arcuated, apices diverging, brown with pale basal area, the tips and bristles white. In this species the sides of the front are a little more arcuated and the clypeus is wider than in *californica*.

Color testaceous tinged with fulvous on vertex, scutellum and anterior margin of pronotum; markings of vertex as in *californica* with the three pairs of points larger, one pair at apex and one next each eye; pronotum with a whitish longitudinal median line; markings of scutellum as in *californica* but darker; elytra whitish hyaline with heavy fuscous venation; a transverse dusky band at middle and another before apex sometimes indicated; commissure with three white areas followed by fuscous marks against the tips of the nervures; apex of membrane more or less clouded with dark; beneath pale varied with fuscous; anterior femora biannulate with fuscous before, the intermediate with a subapical annulus; face with distinct arcs, its median line and disk of cheeks and loræ pale.

Described from one male and four females taken in Mill Creek Cañon, San Bernardino Mts., 3800 ft. elevation. The sharper vertex, more truncate female segment and banded femora will distinguish this species from *inscripta* and *californica*. The markings are stronger than in *californica* and usually the transverse bands are indicated. I take pleasure in naming this species for our dipterist, Dr. F. R. Cole, formerly of Redlands, California, whose guest I was, and near whose summer cottage I took the species.

Type: Male, No. 1785, and *allotype*, female, No. 1786, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, September 22, 1923, in **Mill Creek Cañon, California**.

27. *Aligia modesta occidentalis* Van Duzee, new subspecies

Differs from the eastern form of the species in being more slender in all parts, in being more strongly colored, in having the vertex very feebly angled and the last ventral segment of the female slightly produced and notched at the middle. Eleven specimens, all females, are in the Academy collection. They were taken in California as follows: Mt. Diablo, July 14, 1916; Niles Cañon, July 15, 1916; Cloverdale, August 3, 1916; Cayton, July 17, 1918; and Sonoma Valley, August 1916 (W. M. Giffard) all taken on oaks. Also taken by Mr. Giffard in Placer Co., Calif., August 19, 1916. What I believe to be the male of this form I took at Laurel Dell, Lake Co., Calif., August 3, 1916, and Mr. Giffard took a second example in Placer Co., August 19, 1916.

Type: Female, No. 1787, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 14, 1916, on **Mt. Diablo, California**.

28. *Platymetopius diabolus* Van Duzee, new species

Near *nasutus*, vertex shorter, pronotum broader, elytra longer, vertex strongly banded; face yellow; legs and beneath mostly black; male valve pointed. Length 4-4.5 mm.

Vertex one half longer than wide, right angled; pronotum considerably wider than head, four-fifths as long as vertex. Female segment rather

short, roundedly truncate, slightly produced either side of a small median notch; pygofer stout, two and a half times as long as ultimate segment. Valve of male broad-triangular, as long as wide, apex subacutely angled; plates as broad as valve, blunt at apex, surpassing valve by less than its length; pygofers considerably exceeding plates.

Color cinereous; vertex black dotted with brown posteriorly, crossed by a broad, slightly angled yellow band which sometimes is broken into four spots; apex irregularly yellow; pronotum sprinkled with black transverse dashes, especially anteriorly, the sides almost clear; anterior margin smooth, yellow; scutellum varied with black and yellow; elytra quite regularly varied with fuscous and whitish obscuring the ordinary round white spots; veins fuscous, mostly slenderly edged with pale; a band across the antepical areoles and the apex more heavily marked, with a whiter band including the apical transverse veins and forming a large round spot beyond apex of clavus; face pale yellow to fulvous; base of front pale and irrorate, with the angled vitta traceable but little either side the middle; extreme tip of clypeus black; legs and pectus black; tibiæ pale, dotted; abdomen varied with brown and black, the genitalia pale, especially the male valve.

Described from one male and four females taken on Mt. Diablo, California, July 14, 1916. Among the species with produced and banded vertex this may be distinguished by the pointed male valve, yellow face and black tip of the clypeus.

Type: Male, No. 1788, and *allotype*, female, No. 1789, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 14, 1916, on Mt. Diablo, California. *Paratypes*, same data.

29. *Platymetopius planus* Van Duzee, new species

Size and aspect of *oregonensis*; vertex broader and flatter, with the pronotum nearly immaculate; genitalic characters very distinct. Length 5 mm.

Vertex flat, horizontal, scarcely impressed before apex; its length equal to width between the eyes; sides subacute, rectilinear; apex subacute; pronotal angles not prominent. Front unusually wide for the genus, width between antennæ one half the length; clypeus moderately constricted at middle. Elytral venation indistinct on disk, transverse costal veinlets scarcely oblique. Genital pieces small; valve obtuse-triangular, about as long as apical width of clypeus; plates obtuse, not wider than valve, about as long as clypeus, distinctly exceeding the broad truncate pygofers. Female segment short, truncate, about one half as long as wide,

with a conspicuous notch and rather deep sinuation either side the center, the sides oblique; pygofers short, hardly one-half longer than wide.

Color light fulvous as in *oregonensis*; vertex paler with edge and median line pale; elytra apparently opaque over the tergum; a round white spot in each of the areoles and between the costal veinlets, the basal and claval areoles with a few obscure spots; beneath pale.

Described from four males and three females taken by me as follows: McCloud, Siskiyou Co., July 23, 1918; Sisson, July 25, 26, 1918; Cayton, July 15, 1918; Mt. Tamalpais, June 23, 1918, all in California. The broad flat horizontal vertex, transverse costal veinlets and peculiar genital characters will distinguish this very distinct species.

Type: Male, No. 1790, and *allotype*, female, No. 1791, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 15, 1918, at Cayton, Shasta Co., California.

30. *Platymetopius pexatus* Van Duzee, new species

Related to *trilineatus* but darker with apex of vertex five-lineate with white; the colors darker, apical white spot on elytra elongated, and different male genitalia. Length 5 mm.

Head greatly produced, two and a half times as long as wide between the eyes; sides straight or slightly concave in female, the narrow tip rounded; face concave in profile; front transversely strongly convex between the eyes, four times as long as wide between the antennæ; clypeus strongly widened at apex. Last ventral segment of female short, subangulate at apex where there is a small but distinct notch; pygofers short, hardly twice longer than ultimate segment, bristles short and stout. Male valve large, rounded-triangular, sides rectilinear or nearly so; plates small, much narrower than valve or pygofers, exceeding the valve by one-half its length and reaching basad but little more than half the length of the valve, sides sinuate, apices narrow, rounded; pygofers stout, blunt, exceeding the plates by little more than half the length of the valve.

Color fulvous varied with fuscous and pale; vertex whitish, closely longitudinally vermiculate with fuscous, forming four fuscous lines before the middle thus leaving five pale vittæ, three as in *trilineatus* and one marginal either side; pronotum with seven, scutellum with four obscure pale vittæ; elytra deep fulvous-brown, especially on the disk, opaque; veins distinct; round white spots obscure basally, three on the commissural margin larger, those of the outer apical and subapical areoles

elongated, oblique; costa with about five oblique white spots alternating with the black veins; wings infuscated; face lightly infuscated, obscurely irrorate; basal line conspicuous; apex with a white dot; beneath fulvous-brown varied with fuscous; tibiae paler, with black dots.

Described from three females and a male taken by Mr. W. M. Giffard in Placer Co., Calif., August 20, 1916, at 3000 ft.; a female taken by me at Descanso, San Diego Co., October 18, 1913, and a female from Mill Creek Cañon, San Bernardino Mts., Calif., taken September 22, 1923. With the latter I took three females I believe to be *trilineatus* Ball beaten from yerba santa. They differ from Ball's description only in being more fulvous and in having the lateral lines of the vertex more distinct.

Type: Female, No. 1792, Mus. Calif. Acad. Sci., taken by E. P. Van Duzee, September 22, 1923, in **Mill Creek Cañon, San Bernardino Mts., California.**

31. *Deltocephalus discessus* Van Duzee, new species

Closely allied to *signatifrons*; proportionately broader and shorter; vertex longer and flatter; valve of male shorter and broadly rounded; plates narrower; pygofers longer, surpassing the plates by about the median length of the plates. Ultimate ventral segment of female shorter, truncate, its outer angles a little longer and roundedly prominent; inner angles rounding to a shallow, narrow, median notch, the fundus of this notch touching an obscure rounded pale lobe, somewhat as in *signatifrons*; pygofers broader and proportionately shorter than in the related species. Colors a little darker than in typical *signatifrons*, with more black on the legs and venter; markings of the legs and vertex substantially the same. Length 2.75 mm.

Described from two females and seven males taken by me at Pine Valley, San Diego Co., California, at 4000 feet elevation. This possibly should be considered as a mere race of *signatifrons* but it seems to me best to give it specific rank as typical *signatifrons* has been taken at Keen Camp in the San Jacinto Mts., but a little farther north, and at Blitzen River, Oregon.

Type: Male, No. 1793, and *allotype*, female, No. 1794, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, April 24, 1920, at **Pine Valley, California.**

32. *Deltocephalus cahuilla* Van Duzee, new species

Near *miscellus* Ball; pale yellow with two to four spots at apex of vertex and a few marks on elytra fuscous; vertex produced, triangular. Length 3.4 mm.

Head wider than pronotum; vertex flat, produced and right angled before; apex subacute as in *miscellus*; sides of front slightly approaching at apex; clypeus oblong, slightly narrowed to the feebly rounded apex; cheeks unusually wide beyond the loræ; pronotum scarcely shorter than vertex, feebly sinuated behind; anterior curve of pronotum occupying two-thirds its length; elytra wide, equalling or a little exceeding the abdomen; costa well arcuated. Ultimate ventral segment of female short, as long as the penultimate, apex cut squarely off, with a rounded notch either side of an equal and rounded median lobe. Valve of male large, broadly rounded; plates short, exceeding valve by two-thirds its length, their sides straight and apices rounded; pygofers about equalling the plates.

Color yellowish white, deepened on head, anterior margin of pronotum and scutellum; vertex with about four marginal spots, two apical and two nearer the ocelli, fuscous, the latter pair often obsolete or sometimes accompanied by a pale brownish cloud inwardly; base often with two darker oblique dashes either side; elytra subopaque, polished; veins pale, sometimes obscurely edged with brown toward apex; in pale examples there is usually a fuscous mark on disk of clavus, one on the commissure, one against the first cross-vein on corium, and possibly one at apex of inner apical areole; apex often with an incomplete fuscous vitta; face pale with brown marks toward apex, sutures black; legs pale; abdomen black, segmental margins and more or less of venter pale; pleuræ embrowned.

Described from numerous examples taken by me at Keen Camp, San Jacinto Mts., California, June 6-12, 1917, and a series taken by Mr. W. M. Giffard at Pine Valley, San Diego Co., April 24, 1920, all swept from grass.

Type: Male, No. 1795, and *allotype*, female, No. 1796, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, June 10, 1917, at **Keen Camp, California.**

33. *Deltocephalus zephyrius* Van Duzee, new species

Apparently closely related to *nigriventer* but with darker elytra, vertex wanting the transverse band, clypeus constricted and ultimate ventral segment of female rounded at sides. Length 2.75-3 mm.

Head wider than pronotum, convex in both diameters, the anterior edge broadly rounded to front as in *Euscelis*; apex produced in somewhat less than a right angle; pronotum slightly longer than vertex, its curve anteriorly occupying two-thirds its length; elytra longer than abdomen, nervures distinct; face typical of genus, the clypeus moderately constricted, apex rounded, scarcely equalling the cheeks. Ultimate ventral segment of female rather long, bilobed, the outer angles rounded, median line incised almost to base and overlapping as in *nigriventer*. Male genitalia about as in *nigriventer*; valve short, feebly angled; plates large, transversely convex, sides feebly sinuate, becoming oblique to the rounded reflexed apex; bristles long, pale.

Color cinereous-brown, tinged with yellow on head and scutellum; vertex with a round black spot within and behind each ocellus; apex sometimes with a pair of faint spots; incised line scarcely darker; anterior margin of pronotum paler; elytra subopaque; nervures white, mostly edged with fuscous, the transverse veins more conspicuously white; face pale, the sutures, about six arcs on front and apical spot on clypeus fuscous; sub-antennal cavities black; legs mostly pale, the hind tibiae black in female, edges and spines pale; pectus and abdomen black, sides of male valve narrowly pale.

Described from four male and five female examples taken by me at Forks, Clallam Co., Wash., July 4, 1920. This species has the genital characters of *nigriventer* almost exactly but it is in no way related to *compactus*, the form of the head and color characters separating it widely from that species. Two brachypterous specimens are paler and have the elytra a little shorter than the abdomen. *Deltocephalus contrarasi* Van D. from Sonora is larger with a shorter vertex and thickened elytra with very pale veins. It has, however, the same convex rounded vertex and is certainly related.

Type: Male, No. 1797, and *allotype*, female, No. 1798, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 4, 1920, at Forks, Washington.

34. *Scaphoideus nugax* Van Duzee, new species

Allied to *scalaris*; with shorter elytra but with the same form of head; fulvous yellow, deepened on disk of elytra. Length 4 mm.

Male: Head distinctly narrower than pronotum; vertex subacutely pointed, not depressed, edge rounded, length on median line equal to width between the eyes; elytra subhyaline, veins distinct, three or four supernumerary veinlets on clavus, claval veins not hooked on commissure. Valve broad, triangular; plates twice longer than valve, acutely triangular, sides sinuated, marginal bristles stout.

Color clear fulvous yellow, deeper on disk of elytra above the tergum; base of vertex, anterior margin of pronotum and edge of scutellum posteriorly whitish, apical areoles of elytra considerably enfumed, the elytral veins paler, transverse veins and apex of claval veins thickened and white; beneath and legs pale, dots at base of tibial spines scarcely darker.

Type: Male, No. 1799, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, August 5, 1923, at **Mill Valley, Marin Co., California**. *Paratype*, one male, taken by J. C. Bradley at Berkeley, Calif., in August, 1908, in collection of the author.

35. *Scaphoideus mirus* Van Duzee, new species

Form and aspect of *albonotatus* but with the shorter and rounded head of *Euscelis*; color cinereous with an immaculate yellowish vertex and variegated elytra with three pale commissural areas; Female segment very characteristic. Length 5 mm.

Female: Head slightly wider than pronotum; roundedly subangulate before; vertex convex, broadly rounded to the front, length next the eye three fifths that on median line; front wide for this genus, its basal width five sevenths its length, sides below antennæ rounded to clypeus, the latter much constricted near base with its sides straight and apex rounded; loræ large, one half as broad as long; antennal setæ elongated. Pronotum a third longer than vertex, humeri subangulate. Elytra with two or three supernumerary veinlets in clavus and two in costal areole beyond node. Last ventral segment with median third produced in a long parallel tongue to the middle of the pygofers, apex of this strap-shaped piece cleft to about its middle leaving a long subacute tooth lying either side of the oviduct; exterior to this central process the margin forms a rounded tooth-like lobe, separated from the median process by an acute notch, and outwardly slopes away to the rounded lateral angles. Valve of

male very short, subtriangular; plates about four times the length of the valve but hardly half the length of the long pygofers, obtusely triangular with the sides feebly sinuate.

Color cinereous; vertex pale yellowish. Immaculate; pronotum scarcely irrorate in the type; elytral nervures fuscous, the disk of the larger and of the apical areoles largely fuscous, including rounded whitish spots; front fulvous-brown with pale arcs and median line; clypeus, loræ and cheeks pale yellowish, the latter with a blackish cloud exteriorly; beneath pale, feet and pleural pieces more or less clouded with fuscous; tergum black; antennæ with subapical annulus and most of seta black.

Type: Female, No. 1800, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, April 10, 1923, on creosote bush, at **Potholes, Imperial Co., California**. *Allotype*, male, No. 1801, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, May 16, 1917, at Coachella, Riverside Co., Calif. *Paratype*, one damaged female taken with the allotype. In the allotype the pygofers are shaped exactly as in the female but without the oviduct and with the male plates and valve. It is not unlikely this specimen may be an hermaphrodite in which case the characters of the male genitalia may have become much modified from the form normal for the species.

36. *Euscelis gentilis* Van Duzee, new species

Apparently allied to *shastus* Ball; form and aspect of *relativus* nearly; smaller with shorter pronotum and more pointed vertex; soiled yellowish-testaceous with a black dot behind each ocellus connected by a brown band and with two brown dots on pronotum anteriorly. Length 4.5 mm.

Head a little wider than pronotum, bluntly triangular before; vertex flat on the disk and a little sloping, one-half wider than long; front rather narrow for this genus, a little longer than wide between the ocelli, sides straight above, converging a little to apex; clypeus oblong, parallel, rounded at apex. Pronotum short, a little more than twice wider than long; latero-posterior margins almost reaching the eyes; Elytra long as in *relativus*; clavus and apex with several supernumerary transverse veins, texture subcoreaceous. Last ventral segment of female short, trisinate, the middle broadly, slightly, produced, the angles more prominently so; pygofers broad but not subangulate. Valve of male short, broad-triangular; plates long-triangular, obtuse, four times longer than valve, sides feebly arcuate.

Color soiled yellowish-testaceous, a little clearer on head and scutellum; vertex with a round black spot behind each ocellus, a faint brown cloud connecting these spots and some marks near anterior margin more or less apparent; pronotum faintly varied with brownish, with two median brown marks anteriorly; elytral veins pale, more or less distinctly edged with brown, more apparent apically; front with fuscous arcs and pale median line; tergum, pleuræ and base of venter marked with brown, more extended in male; ocelli pink; hind tibiæ with faint brown points at base of spines.

Type: Female, No. 1802, and *allotype*, male, No. 1803, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, August 2, 1916, at **Hobergs Resort, Lake Co., California.**

37. *Euscelis almus* Van Duzee, new species

Allied to *frigidus* Ball, a little narrower with more pointed head; vertex with three round black spots one of which is discal; elytra faintly fuliginous with pale nervures and fuscous marks in apical areoles. Length 4 mm.

Head a little wider than pronotum, vertex nearly horizontal at base, broadly rounded to base of front, polished. Front moderately broad, one-half longer than broad, nearly flat; sides slightly narrowed to apex; clypeus oblong, apex rounded, sides feebly excavated; loræ narrow. Pronotum a little longer than vertex, outer angles broadly rounded. Elytra with one or two supernumerary cross veins near apex of costa. Last ventral segment of female rather deeply, angularly excavated. Valve of male longer than ultimate segment, roundly triangular; plates long, obtuse at apex, sides feebly arcuated, contracted at base.

Color pale yellowish, deeper on head; vertex with three round black spots, the median paler, placed forward of the lateral and minutely notched before; lateral placed near the eyes and just above the line of the ocelli; face with a row of four large black spots below the margin, the lateral on the temples above the antennæ; sutures of the face and about six arcs fuscous; pronotum scarcely darkened across the disk and on anterior margin; scutellum usually with black spots near basal angles and two brown discal dots, apical field sometimes with two brown spots. Elytra pale smoky with conspicuous pale nervures; apical transverse veins marked with brown and a brown vitta borders the apical veins; pleural pieces and abdomen more or less black, the last ventral segment of female with a black spot at fundus of notch; suture and dorsum of male pygofers black; legs pale, claws black.

Described from three male and three female specimens. The seven large round black spots on head (three on vertex and four below margin) are a conspicuous character of this species. While recalling *frigidus* the characters of the head and elytra place this species in subgenus *Conosanus*.

Type: Female, No. 1804, and *allotype*, male, No. 1805, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, May 23, 1918, at Los Baños, Merced Co., California.

38. *Euscelis finitimus* Van Duzee, new species

Color and aspect somewhat of the female of *Eutettix bartschi* but with the front and vertex of *Euscelis*; polished light fulvous brown with pale veins and irrorations; vertex with a black mark behind the eyes. Length 5 mm.

Head little wider than pronotum, obtusely angled; vertex nearly flat, about two-thirds wider than long; front broad, its length and width subequal, sides straight above, incurved to clypeus, abruptly raised above level of cheeks; clypeus oblong, a little narrowed to the rounded apex; pronotum long, twice as long as vertex, sides broadly rounded behind the eyes; elytra shaped much as in *Eutettix subaenea* with arcuate costa and flaring tips, with four or five supernumerary veinlets in outer areole of clavus. Last ventral segment of female broadly excavated, the outer angles subacute, middle with a broad short lobate tooth which is feebly angled; pygofers short and broad. Valve of male short, broad-triangular and convex, a little shorter than the pygofers.

Color light fulvous brown, clearer beneath, polished; vertex with an angular black mark on each side between ocellus and eye, but showing a tendency to being drawn out into a transverse band; anterior to these spots are two curved darker lines either side the middle and another indicated near the hind margin; pronotum irrorate with pale, with a large pale area behind the eyes; elytral nervures, except the marginal, pale; minute points at base of tibial spines and claws black.

The polished fulvous surface gives this insect somewhat the aspect of a *Eutettix* but it is a *Euscelis* of the *Conosanus* group.

Type: Female, No. 1806, and *allotype*, male, No. 1807, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 31, 1918, at Colestin, Oregon.

39. *Lonatura pupa* Van Duzee, new species

Closely allied to *minuta* Van Duzee, a little larger with a longer vertex and different form of last ventral segment. Length 3 mm.

Macropterous female: Vertex a little longer than width between the eyes, forming a right angle, with the apex obtuse; surface convex as in *minuta*. Elytra a little longer than abdomen; nervures distinct; second cross-nervure prominent; front a fourth longer than wide, rather abruptly narrowing to clypeus, the latter narrower at apex with the sides straight. Ultimate ventral segment one half longer than preceding, arcuately narrowing to a bluntly angular apex; pygofers slender, equalling the oviduct.

Color pale yellowish, a little more deeply colored on head, paler beneath; elytra subhyaline, nervures yellowish; tergum and oviduct mostly black; eyes brown; ocelli and tip of rostrum black.

Lonatura nana Van D. from the Gulf of California region is wider with very different ultimate segment.

Type: Female, No. 1808, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, July 12, 1922, at Saltair, Utah. *Paratypes*, two females, same data.

40. *Thamnotettix lenis* Van Duzee, new species

Size and aspect of *helvinus* Van D.; a small green species with yellow pointed head, dark front and short truncate male plates. Length, male, 4.75 mm., female, 5.5 mm.

Head much wider than pronotum; vertex acutely triangular, almost as long as width between the eyes; front narrow, almost one-half longer than wide, base acutely angled, profile slightly concave; sides straight, but slightly contracted at base of clypeus; the latter parallel sided, but little narrowed at apex. Last ventral segment of female rather long, apical margin broadly arquate, with a shallow notch either side the median line, leaving a broad short median tooth which is minutely emarginate and is included in a black cloud lying behind each sinus; pygofers short and stout, not twice longer than wide and almost entirely clothed with long stout bristles. Valve of male large, obtusely triangular; plates as long on median line as the valve, cut off square at tip, sides straight; pygofers narrow, exceeding plates by the median length of the plates, closely clothed with stout white bristles as in the female.

Color light green becoming yellow on vertex, anterior margin of pronotum and on the scutellum, apex of elytra more hyaline, scarcely clouded, veins yellow; front brown with arcs and margin more or less yellow, sutures dark; pleuræ and abdomen black, margins, apex of abdomen, edge of male valve and last ventral segment and the pygofers of female yellow; male plates whitish, the pygofers black; legs pale, the pale spines set in small brown dots.

The unusually pointed head and peculiar genitalia will distinguish this small green species.

Type: Male, No. 1809, and *allotype*, female, No. 1810, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, May 18, 1920, at **Bryson, Monterey Co., California**. *Paratypes*, two males, two females, taken as follows: Bradley, Monterey Co., California, April 23, 1917 (E. P. Van Duzee); Santa Cruz, California, June 8, 1917 (W. M. Giffard).

41. *Thamnotettix verutus* Van Duzee, new species

Near *vastula* in size, form and color but with distinct genitalia; light green, more yellowish on head and scutellum; apex of elytra smoky; male plates large, triangular, exceeding the pygofers. Length 5.5 mm.

Male: Head well produced, right-angled before, apex subacute; vertex flat, broadly rounding to the front; front strongly convex transversely, as long as wide, sides straight above, gently rounding to the clypeus, the latter rectangular, with straight sides. Pronotum scarcely shorter than vertex; more deeply excavated behind than in *vastula*. Valve broad, short, slightly angled; plates, taken together, rather longer than their basal width and distinctly exceeding the pygofers, triangular, subacute at apex, their sides very feebly concave from near base.

Color clear green, becoming yellowish on head, anterior margin of pronotum and scutellum; elytra subopaque, the costa apically paler; apical areoles smoky; front paler with a brown cloud either side; tergum (except narrow margin), sternum, base of vertex and genital hooks black. Legs and their spines whitish.

Female with vertex shorter than in male. Last ventral segment narrow, constricted near base, sides beyond gradually approaching, outer angles rounded; middle one-half shallowly excavated, base of excavation straight, impressed and blackened; oviduct black, considerably exceeding the pygofers.

Described from a good series taken by me as follows: Bryson, Calif., April 24, 1917, May 18-20, 1920; Bradley, Calif., April 23, 1917, May 22, 1920; Soboba Springs, Riverside Co., Calif., May 30, 1917; San Jacinto, Calif., May 29, 1917; Dixon, Calif., June 3, 1920. Also taken in Shasta Co., Calif., July 17, 1921, by J. A. Kusche. Like all its green allies this species when teneral has a pale bluish look from the black tergum showing through the imperfectly pigmented elytra. The large triangular, scarcely excavated plates of the male will distinguish this species.

Type: Male, No. 1811, and *allotype*, female, No. 1812, Mus. Calif. Acad. Sci., collected by E. P. Van Duzee, May 20, 1920, at **Bryson, Monterey County, California.**